HOW MUCH FERTILIZER SHALL I USE?

A Gardener's Guide for Converting

Tons or Pounds Per Acre

into

Pints, Cups, Tablespoons, or Teaspoons per Row or Plant

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How to calculate small measures of fertilizers from recommended applications by weight for large areas

BOOKS and bulletins on agriculture and gardening usually give recommendations for the use of fertilizers and lime in tons or pounds per acre, or in pounds per thousand or hundred square feet. The gardener often finds difficulty in converting these weights into the measures needed for a small plot or for a single row or a single plant; and frequently he has no scales for weighing. This folder makes the conversions for him, using the common household measurements of pints, cups, tablespoons, and teaspoons.

For example, if 300 pounds of superphosphate or mixed fertilizer are recommended per acre, you will find by turning to table 1 that this means 7 pounds per thousand square feet, or 11 ounces (1½ cups) per hundred square feet. Then, turning to table 2, you will find that 1½ cups per hundred square feet means ½ cup for each 10-foot row if the rows are 3 feet apart, or 6 tablespoonfuls for each plant if the plants are spaced 5×5 feet. A large number of such conversions are given for various kinds of fertilizer material and to fit various needs.

Table 3 shows volume measures (in cups, tablespoons, etc.) of chemicals to be added to each bushel of plant material in making a compost pile, based on directions in weight per ton of plant material.

The rates to be selected for the various materials depend on the soil and its previous treatments and the requirements of the plants. Certain materials—ground limestone, where needed, and superphosphate—are used in relatively large quantity; borax and others, sparingly. For example, small-rate supplemental additions of ammonium nitrate can be given tomatoes with advantage, whereas very much would injure the plants.

The values tabulated are near enough for all practical purposes, though they are only approximate, since the weight of a given volume of a material will vary with its moisture content and texture. In making the calculations it was assumed that the materials will be scooped up into the container without any packing, and that they will be loose and not lumpy. The standard pint, cup, tablespoon (tbs.), and teaspoon (tsp.) are used for

liquid measure. Other than for liquids, level-full measures are understood, with two exceptions: Slightly heaped (indicated by *h*); and a trifle less than full (by *s*).

For materials not included in the lists, one may weigh carefully a full pint and determine approximately the group to which it belongs.

It will be useful to remember (1) that a pint of water weighs just a little more than a pound (actually, 1.046 pounds); (2) that an acre is equivalent to 43,560 square feet (a plot about 209 feet square); and (3) that a pint is equivalent to 2 cups, or 32 tablespoons, or 96 teaspoons.

TABLE 1.—*Weights of various fertilizing materials per acre, per 1,000 square feet, and per 100 square feet and the approximate equivalent-volume measures for 100 square feet, grouped according to weight in comparison with that of water*

Materials	Weights Specified per —			Volume Measure for 100 Sq. Ft.
	Acre	1,000 Sq. Ft.	100 Sq. Ft.	
	Pounds	*Pounds*	*Pounds*	*Pints*
Weight about the same as that of water	1, 300	30	3	3
	870	20	2	2
	435	10	1	1
Examples: Cal-Nitro (or A-N-L), manure salts.				*Cups*
	220	5	1/2	1
	110	2 1/2	1/4	1/2
				Pints
Weight about 1 3/10 that of water	5, 660	130	13	10
	3, 485	80	8	6
	870	20	2	1 1/2
Examples: Ground limestone, ground dolomitic limestone, granular sodium nitrate, potassium sulfate.			*Ounces*	
	565	13	21	1
				Cup
	280	6 1/2	11	1
			Pounds	*Pints*
Weight about 9/10 that of water	1, 960	45	4 1/2	5
	1, 650	38	3 3/4	4
	1, 220	28	2 3/4	3
	1, 000	23	2 1/4	2 1/2
			Ounces	
	785	18	30	2
	610	14	21	1 1/2
	390	9	15	1
Examples: Ammonium phosphate, double superphosphate, superphosphate, mixed fertilizers (5-10-5, 4-8-4, etc.), muriate of potash.				*Cups*
	300	7	11	1 1/2
	200	4 3/4	7 1/2	1
	100	2 1/4	3 1/2	1/2
		Ounces		*Tbs.*
	50	18	2	4
	11	5	1/2	1

TABLE 1.—*Weights of various fertilizing materials per acre, per 1,000 square feet, and per 100 square feet and the approximate equivalent-volume measures for 100 square feet, grouped according to weight in comparison with that of water*—Continued

Materials	Weights Specified per —			Volume Measure for 100 Sq. Ft.
	Acre	1,000 Sq. Ft.	100 Sq. Ft.	
	Pounds	*Pounds*	*Pounds*	*Pints*
Weight about 8/10 that of water	1,740	40	4	5
	650	15	1½	2
			Ounces	*Cups*
Examples: Epsom salts, bonemeal.	175	4	6½	1
				Tbs.
	44	1	1½	4
			Pounds	*Pints*
Weight about 7/10 that of water	1,740	40	4	6
	1,525	35	3½	5
	650	15	1½	2
			Ounces	
	300	7	11	1
				Cup
Examples: Activated sewage sludge, Uramon, ammonium sulfate, granular ammonium nitrate, aluminum sulfate, granular borax.	150	3½	5½	1
				Tbs.
	44	1	1½	4
		Ounces		
	11	5	½	1
		Pounds	*Pounds*	*Pints*
Weight about 6/10 that of water	1,300	30	3	5
	545	12½	1¼	2
			Ounces	
	260	6	10	1
				Cup
Examples: Cottonseed meal, sulfur, fish scrap.	130	3	5	1
			Pounds	*Pints*
	1,100	25	2½	5
Weight about 5/10 that of water	435	10	1	2
			Ounces	
Example: Hydrated lime.	220	5	8	1
				Cup
	110	2½	4	1
Manure (moist):	*Tons*		*Pounds*	*Bushels*
Loose	13	600	60	2
Packed	13	600	60	1
Dry straw or leaves packed tightly with hands	5	250	25	2

TABLE 2.—*Approximate equivalent-volume measures of materials to use in the row and per plant at various rates per 100 square feet*

Rates per 100 Square Feet	Rates per 10 feet, Rows Spaced—			Rates per Plant, Spaced—		
	3 ft.	2 ft.	1 ft.	5×5 ft.	2¼×2¼ ft.	2×1½ ft.
Pints	*Pints*	*Pints*	*Pints*	*Pints*	*Cups*	*Cups*
10	3	2	1	2½	1	½
	Cups	*Cups*	*Cups*	*Cups*		
6	3½	2½	1¼	3	(*h*) ½	(*h*) ¼
5	3	2	1	2½	½	¼
					Tbs.	*Tbs.*
4	2½	1½	¾	2	6½	(*h*) 3
3	1¾	1¼	(*h*) ½	1½	5	2½
2½	1½	1	½	1¼	4	2
			Tbs.			
2	1¼	¾	6½	1	3¼	1½
1½	(*h*) ¾	(*h*) ½	5	¾	2½	(*h*) 1
		Tbs.				*Tsp.*
1	½	6	3¼	½	1½	2½
Cups				*Tbs.*		
1½	½	5	2½	6	1	1½
	Tbs.				*Tsp.*	
1	5	3¼	1½	4	2½	¾
½	2½	1½	¾	2	1¼	½
Tbs.		*Tsp.*	*Tsp.*			
4	1¼	2½	1¼	1	½	¼
	Tsp.					
1	1	(*h*) ½	⅓	¼	⅙	⅛
Bushels	*Bushels*	*Pecks*	*Quarts*	*Bushel*	*Quarts*	*Quarts*
2	(*h*) ½	1½	6	½	3	1½
	Peck			*Peck*		
1	(*h*) 1	(*s*) 1	3	1	1½	¾

h=Slightly heaped. *s*=A trifle less than full.

Measuring Chemicals for Compost Heaps

In making compost heaps with oak leaves as the chief source of organic matter, together with some grass and other plant materials, chemical aids are needed to disintegrate the more durable parts. If, however, a considerable quantity of lawn clippings and other plant tissue is used, the weight or measure of the chemicals named in table 3 may be somewhat reduced. When manure constitutes half the organic matter, no nitrogen is required—only the phosphate and limestone are needed. No limestone should be used if materials are to be applied to blueberries, azaleas, or similar acid-loving plants.

The compost may be prepared in layers, a layer of garden soil or dark-colored surface soil out of the woods about 1/2 to 2 inches thick, alternating with each 6- or 12-inch layer of fresh organic matter. When finished, the whole should be covered with 2 to 4 inches of soil.

TABLE 3.—*Volume measures of chemicals to be added separately to each bushel of plant material in making a compost pile, at specified rates per ton of material*

Chemicals	Weight Needed per Ton of Material	Volume Measure Needed per Bushel of Material[1]
	Pounds	*Cups*
Method 1:		
(*a*) Either ammonium sulfate	80	1
(*a*) or ammonium nitrate	50	1/2
(*b*) Either ground dolomitic limestone [2]	60	2/3
(*b*) or wood ashes [2]	80	1 1/2
(*c*) Superphosphate	50	1/2
		Tbs.
(*d*) Magnesium sulfate (Epsom salts) [3]	8	1
Method 2:		*Cups*
(*a*) Mixed fertilizer 5–10–5	300	3
(*b*) Ground dolomitic limestone [2]	60	2/3

[1] Packed tightly with the hands.

[2] For acid compost omit lime, limestone, and wood ashes.

[3] Epsom salts to be added only if dolomitic limestone is unavailable and ordinary limestone is used (at same rate).

Note.—This pamphlet is not to be interpreted as making recommendations regarding the materials listed. Its purpose is solely to provide convenient conversion tables.

Prepared by

CHARLES E. KELLOGG

Head soil scientist, in Charge

Division of Soil Survey

Bureau of Plant Industry, Soils, and

Agricultural Engineering

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